

**FIT9020**  
**Data communications**

**Unit Guide**

**Semester 2, 2010**

The information contained in this unit guide is correct at time of publication. The University has the right to change any of the elements contained in this document at any time.

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# **FIT9020 Data communications - Semester 2, 2010**

## **Chief Examiner:**

Andrew P. Paplinski

## **Lecturer(s) / Leader(s):**

### **Caulfield**

Andrew P Paplinski

## Introduction

Welcome to FIT9020 Data Communications. This 6 point unit is core to those students undertaking MIT and MAIT degrees, who have not had prior exposure to data communications and networking. The unit has been designed to provide you with a good understanding of the technical side of working of local area networks on one hand, and the Internet on the other.

## Unit synopsis

The unit will introduce students to fundamentals of data and computer communications method and techniques. It covers: ISO and TCP/IP layered protocols; physical layer concepts: data transmission methods, signal encoding and digital data communication techniques; data link control protocol, multiplexing methods; WAN and LAN networking fundamentals; internetworking and transport protocols.

## Learning outcomes

At the completion of this unit students will:

- understand layered ISO and TCP/IP protocols;
- have knowledge of data transmission technology, signal encoding techniques and data link control protocols;
- understand multiplexing methods and technologies;
- understand the functions and architectures of LAN and WAN.

## Contact hours

2 hrs lectures/wk, 2 hrs laboratories/wk

## Workload

For on campus students, workload commitments are:

- two-hour lecture and
- two-hour tutorial
- a minimum of 2-3 hours of personal study per one hour of contact time in order to satisfy the reading and assignment expectations.
- You will need to allocate up to 5 hours per week in some weeks, for use of a computer, including time for newsgroups/discussion groups.

## Unit relationships

### Prerequisites

FIT9018

## **Prohibitions**

CSE9801, BUS3150, CSE2318, CSE3318, FIT1005

## Teaching and learning method

### Teaching approach

Lectures will provide students with theory and demonstrations of the discussed concepts.

Tutorials will be used to study the practical aspects of the material presented in lectures.

### Timetable information

For information on timetabling for on-campus classes please refer to MUTTS,  
<http://mutts.monash.edu.au/MUTTS/>

### Tutorial allocation

On-campus students should register for tutorials/laboratories using the Allocate+ system:  
<http://allocate.its.monash.edu.au/>

### Unit Schedule

Week	Date*	Topic	Study guide	Key dates
1	19/07/10	Introduction to data communications	LN1	
2	26/07/10	Application Layer	LN2	
3	02/08/10	Physical layer	LN3	
4	09/08/10	Data Link Layer	LN4	
5	16/08/10	Network and Transport Layers - part 1	LN5	
6	23/08/10	Network and Transport Layers - part 2	LN6	Assignment 1 due
7	30/08/10	Local area network	LN7	
8	06/09/10	Wireless Local Area Networks	LN8	
9	13/09/10	Metropolitan and wide area networks	LN9	
10	20/09/10	Backbones networks	LN10	
Mid semester break				
11	04/10/10	The Internet	LN11	Assignment 2 due
12	11/10/10	Network design	LN12	
13	18/10/10	Revision	Revision	

\*Please note that these dates may only apply to Australian campuses of Monash University. Off-shore students need to check the dates with their unit leader.

## Unit Resources

### Prescribed text(s) and readings

Jerry FitzGerald and Alan Dennis, *Business Data Communications and Networking*, 10th Edition, Willey, 2009.

### Recommended text(s) and readings

W. Stallings, *Data and Computer Communications*, 8th ed., Pearson, 2008.

### Required software and/or hardware

Wireshark. Packet Analysis Software

### Equipment and consumables required or provided

Students studying off-campus are required to have the minimum system configuration specified by the Faculty as a condition of accepting admission, and regular Internet access. On-campus students, and those studying at supported study locations may use the facilities available in the computing labs. Information about computer use for students is available from the ITS Student Resource Guide in the Monash University Handbook. You will need to allocate up to **8** hours per week for use of a computer, including time for newsgroups/discussion groups.

### Study resources

Study resources we will provide for your study are:

- Weekly detailed lecture notes outlining the learning objectives, discussion of the content, required readings and exercises;
- Weekly tutorial/laboratory tasks and exercises with sample solutions provided one to two weeks later;
- Sample class tests and suggested solutions;
- Discussion groups;
- This Unit Guide outlining the administrative information for the unit;
- The unit web site on Moodle, where resources outlined above will be made available.

## Assessment

### Overview

Examination (3 hours): 60%; In-semester assessment: 40%

### Faculty assessment policy

To pass a unit which includes an examination as part of the assessment a student must obtain:

- 40% or more in the unit's examination, and
- 40% or more in the unit's total non-examination assessment, and
- an overall unit mark of 50% or more.

If a student does not achieve 40% or more in the unit examination or the unit non-examination total assessment, and the total mark for the unit is greater than 50% then a mark of no greater than 49-N will be recorded for the unit.

To pass this unit a student must obtain an overall unit mark of 50% or more

### Assignment tasks

#### Assignment coversheets

Assignment coversheets are available via "Student Forms" on the Faculty website:

<http://www.infotech.monash.edu.au/resources/student/forms/>

You MUST submit a completed coversheet with all assignments, ensuring that the plagiarism declaration section is signed.

**Assignment submission and return procedures, and assessment criteria will be specified with each assignment.**

Assignment submission and preparation requirements will be detailed in each assignment specification. Submission must be made by the due date otherwise penalties will be enforced. You must negotiate any extensions formally with your campus unit leader via the in-semester special consideration process:

<http://www.infotech.monash.edu.au/resources/student/equity/special-consideration.html>.

#### • Assignment task 1

**Title:**

Assignment1

**Description:**

Assignment 1 will include the material covered in weeks 1-5. In particular questions will be related to: components of networks, type of networks, internet models, message transmission using layers, application layer architectures, physical and data link layers.

**Weighting:**

20%

**Criteria for assessment:**

The criteria used to assess submissions are:

- ♦ Correctness and understanding - there may be more than one "right" answer in many cases.



- ◆ Completeness - that you have answered all parts of each question.
- ◆ Presentation - that you have presented your answers using the appropriate method.
- ◆ Use of evidence and argument - you are able to explain your position by using logical argument.

**Due date:**

Week 6

## • Assignment task 2

**Title:**

Assignment 2

**Description:**

Assignment 2 will include the material covered in weeks 6-10. In particular, the questions will be related to network and transport layers, structures and functions of local area, backbone and wide area networks.

**Weighting:**

20%

**Criteria for assessment:**

The criteria used to assess submissions are:

- ◆ Correctness and understanding - there may be more than one "right" answer in many cases.
- ◆ Completeness - that you have answered all parts of each question.
- ◆ Presentation - that you have presented your answers using the appropriate method.
- ◆ Use of evidence and argument - you are able to explain your position by using logical argument.

**Due date:**

Week 11

## Examination

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**Weighting:**

60%

**Length:**

3 hours

**Type (open/closed book):**

Closed book

**Electronic devices allowed in the exam:**

None

**See Appendix for End of semester special consideration / deferred exams process.**

## Due dates and extensions

Please make every effort to submit work by the due dates. It is your responsibility to structure your study program around assignment deadlines, family, work and other commitments. Factors such as normal work pressures, vacations, etc. are not regarded as appropriate reasons for granting extensions. Students are advised to NOT assume that granting of an extension is a matter of course.

Students requesting an extension for any assessment during semester (eg. Assignments, tests or presentations) are required to submit a Special Consideration application form (in-semester exam/assessment task), along with original copies of supporting documentation, directly to their lecturer within two working days before the assessment submission deadline. Lecturers will provide specific outcomes directly to students via email within 2 working days. The lecturer reserves the right to refuse late applications.

A copy of the email or other written communication of an extension must be attached to the assignment submission.

Refer to the Faculty Special consideration webpage or further details and to access application forms: <http://www.infotech.monash.edu.au/resources/student/equity/special-consideration.html>

## **Late assignment**

Assignments received after the due date will be subject to a penalty of **5% per day. Assignments received later than one week after the due date will not normally be accepted.**

## **Return dates**

Students can expect assignments to be returned within two weeks of the submission date or after receipt, whichever is later.

## **Feedback**

Types of feedback you can expect to receive in this unit are:

Informal feedback on progress in labs/tutes

Graded assignments with comments

Solutions to tutes, labs and assignments

## Appendix

Please visit the following URL: <http://www.infotech.monash.edu.au/units/appendix.html> for further information about:

- Continuous improvement
- Unit evaluations
- Communication, participation and feedback
- Library access
- Monash University Studies Online (MUSO)
- Plagiarism, cheating and collusion
- Register of counselling about plagiarism
- Non-discriminatory language
- Students with disability
- End of semester special consideration / deferred exams